PATENT SPECIFICATION

DRAWINGS ATTACHED

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Int. Cl.:—B 65

COMPLETE SPECIFICATION

Dispensing Head for Aerosol Container

We, STERLING Drug Inc., a corporation organized under the laws of the State of Delaware, United States of America, of 1450 Broadway, New York, State of New York, United States of America, do hereby declare the invention for which we pray that a patent may be granted to us and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to a dispensing head in the form of a cover cap for co-operating with the valve stem of a pressurized aerosol container for the administration of therapeutic agents in the form of a vapor or fine mist, and including means whereby the vapor may be locally applied as desired by the user, the cover cap being constructed to be used as a cap and protector for the valve stem of the aerosol container when the device is not in use so that it is easily carried in pocket or purse without appreciable danger of leakage or accidental actuation.

It is also desirable to provide the cap with an available air passage only when an actuator is depressed for releasing spray.

It is also desired the dispensing head requires no assembly problems on the part of the user, such as is the appearance shown in our British patent No. 844,715, but at the same time the aerosol valve is protected, assembly and detaching of the dispensing head to valve stem is eliminated, and the dispensing head may always be engaged with the valve stem of the aerosol container.

In accordance with the present invention there is provided a dispensing head for an aerosol container charged with a self-propelling liquid composition and equipped with an inwardly depressible and normally valve stem, said head comprising a cylindrical body member adapted to fit on the container, a delivery tube shaped for administration of the aerosol contents to the oral cavity of the user, an air inlet permitting mixing of air with the aerosol contents within the delivery tube, said delivery tube being substantially straight and being formed as an integral part of the cylindrical body member and mounted substantially perpendicularly thereon, a depressible button slidably positioned within the cylindrical body member to move axially thereof so as to engage said valve stem for depressing the same, said button being maintained in normal inoperative position by the resilient action of said stem, said air inlet comprising an opening in the cylindrical body member through which a portion of said depressible button extends, the depressible button normally closing said air inlet but opening the same upon being depressed.

Reference is made to the accompanying drawings illustrating a specific embodiment of the invention in which:

Fig. 1 is a perspective view illustrating the device with the closure cap in place;

Fig. 2 is a sectional view through the device showing the construction thereof;

Fig. 3 is a partial view similar to Fig. 2 but showing the valve depressed;

Fig. 4 is a plan view, looking in the direction of arrow 4 in Fig. 2;

Fig. 5 is a plan view on an enlarged scale of the top of the depressible button, and

Fig. 6 is a bottom plan view thereof.

For the purpose of illustrating the invention, the same is shown in Figs. 1 and 2 as being applied to an aerosol container 10. As shown in Fig. 2, the aerosol container is provided with a crimped metal neck portion 12 or other ferrule which supports the depressible valve stem 14 and as is well known in the art when the valve stem is pressed inwardly in the direction of the arrow 16, a spray will be emitted from the end of the valve stem 14 in the usual manner. The aerosol container can be of the mounting type or in can be a continuous type as desired.

The dispensing head which comprises the subject matter of the present invention is generally indicated by the reference numeral 18. In the first place there is generally cylindrical body member 20 having an inwardly directed flange in the form of a flat top 22 with a generally semicircular opening therein indicated at 24 and this accommodates a depressible button 26 as be hereinafter described. At the end opposite the first top 22 the body member 20 is open and the dispensing head fits substantially permanently over the crimped neck portion 12 of the container 10.

The cylindrical member 20 has a delivery tube in the form of a right-angled cylindrical portion 28 integral therewith and this is provided with a reduced mouth portion 30 for the fitting in reception of a closure cap 32. The cylindrical portion 28 rises however at its top portion thereof above the first top 22 as is clearly shown in Figs. 1 and 2 and is joined to cylindrical member 20 along curved lines 34 (see Fig. 1). An inclined surface 36 extends well above the first top 22 and closes the part of portion 28 above top 22.

Referring more particularly now to the construction of the button 26, it will be seen that this is provided at its upper end with an inclined or bevelled wall 38 which when the button is in raised position shown against a similarly inclined or bevelled wall 40 forming a part of the edge of the opening 24. This accommodates the wall at 38 of button 26 and also in effect forms an upper stop for it. The inclined walls at 38 and 40 have frustoconical surfaces semicircular in cross-section (see particularly Fig. 4) and the button has a flat forward edge 42 which extends down to a shelf 44 (see Figs. 2 and 3). Below the shelf 44 the button 26 is generally cylindrical in shape and conforms to the inside surface of the member 20, this inside surface being indicated at 46 in Fig. 3 and the button 26 is adapted to ride up and down in this cylinder. The flat surface at 42 rides along a flat surface at 50 which forms the forward edge of the opening 24 so that the button is always in correctly aligned position with respect to the rest of the head.

It is particularly pointed out that in its uppermost position the top surface or fingerpiece 52 of the button 26 normally extends into close proximity with and is slightly below the top surface at 54 of the projection of the delivery tube 28 so that the button 26 although capable of being purposely pushed down in the direction of arrow 16 and as indicated in Fig. 3, will not be so moved accidentally because of the fact that the projection of the cylindrical portion 28 rising to the surface 54 acts as a guard against this action.

The button 26 is largely hollow but it has a solid portion 58 (see particularly Fig. 2), and in this solid portion there is a passage at 60 having an enlargement which receives the stem 14 preferably with a close fit. However, the passage 60 communicates with another passage 64 at an angle thereto forming the spray orifice. When the button is in the down position (Fig. 3), a spray is directed into the approximate center of the cylindrical delivery tube 28 and when this occurs it will be seen that an adequate air passage 66 is provided because the inclined surface 38 of the button 26 drops away from the inclined surface 40 in the top portion of the cylindrical member 20.

WHAT WE CLAIM IS:—

1. A dispensing head for an aerosol container charged with a self-propelling liquid composition and equipped with an inwardly depressible and normally valve stem, said head comprising a cylindrical body member adapted to fit on the container, a delivery tube shaped for administration of the aerosol contents to the oral cavity of the user, an air inlet permitting mixing of air with the aerosol contents within the delivery tube, said delivery tube being substantially straight and being formed as an integral part of the cylindrical body member and mounted substantially perpendicularly thereon, a depressible button slidably positioned within the main cylindrical body member to move axially thereof so as to engage said valve stem for depressing the same, said button being maintained in normal inoperative position by the resilient action of said stem, said air inlet comprising an opening in the cylindrical body member through which a portion of said depressible button extends, the depressible button normally closing said air inlet but opening the same upon being depressed.

2. A dispensing head according to claim 1, in which the air inlet is defined by an inwardly directed flange on the cylindrical body member, said flange having an inclined wall, and a correspondingly inclined wall on the button, said inclined walls being engaged in the normal inoperative position of said button but providing the air inlet upon depression of said button.

3. A dispensing head according to claim 2, in which the matching inclined walls have frustoconical surfaces.

4. A dispensing head according to any one of the preceding claims, which comprises a finger piece on said depressible button normally extending from close proximity with the top surface of a projection of the delivery tube.

5. A dispensing head according to claim 4, in which in the inoperative position of the button the fingerpiece is spaced slightly below the top surface of the projection of the delivery tube.

6. A dispensing head according to any one of the preceding claims, which includes a closure cap adapted for reception on the mouth portion of the delivery tube.

7. A dispensing head according to any one of the preceding claims, positioned on a crimped neck portion of an aerosol container so as to be substantially permanently fitted on said neck portion with the depressible button engaging the valve stem of the aerosol container.

8. A dispensing head for an aerosol container substantially as herein described with reference to the accompanying drawings.

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Agents for the Applicants.

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1 SHEET This drawing is a reproduction of the Original on a reduced scale

FIG. 1.

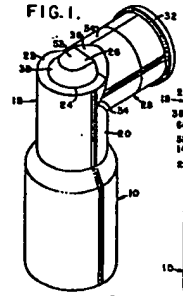

FIG. 2

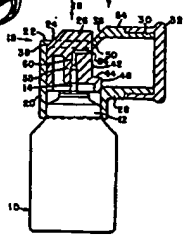

FIG. 3.

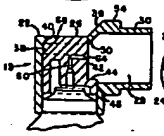

FIG. 4.

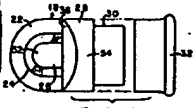

FIG. 5.

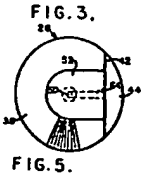
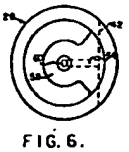
FIG. 6.